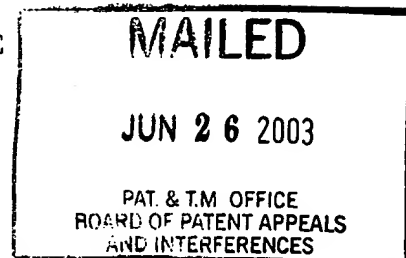


The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES



Ex parte PETER VAN DE WITTE, JOHANNES A.M.M. VAN HAAREN,
RIFAT A.M. HIKMET, and DIRK J. BROER

Appeal No. 2002-0122
Application No. 08/857,756

ON BRIEF

Before GARRIS, OWENS, and POTEATE, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the refusal of the examiner to allow claims 1-14 as amended subsequent to the final rejection. The only other claim in the application, which is claim 15, stands withdrawn from further consideration by the examiner.

The subject matter on appeal relates to a liquid-crystal display device having a display cell containing nematic, liquid-crystal material between two substantially parallel substrates and at least two retardation foils which predominantly contain polymerized or vitrified liquid-crystalline material comprising liquid-crystal molecules, the liquid-crystal molecules exhibiting a tilt angle relative to the substrates, and the average directions of orientation of the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material of each of the retardation foils, making an angle with each other which ranges between 60 and 120 degrees, viewed at right angles to the substrates. This appealed subject matter is adequately illustrated by independent claim 1 which reads as follows:

1. A liquid-crystal display device having a display cell which comprises a layer of a nematic, liquid-crystal material between two substantially parallel substrates, which display cell is further provided with polarizers, characterized in that the display cell comprises at least two retardation foils which predominantly contain polymerized or vitrified liquid-crystalline material comprising liquid-crystal molecules, the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material exhibiting a tilt angle relative to the substrates, and the average directions of orientation of the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material of each of the retardation foils, making an angle with each other which ranges between 60 and 120 degrees, viewed at right angles to the substrates.

The reference set forth below is relied upon by the examiner as evidence of obviousness:

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Ito et al. (Ito)

5,583,679

Dec. 10, 1996

All of the appealed claims are rejected under 35 U.S.C.
§ 103(a) as being unpatentable over Ito.¹

We refer to the brief and reply brief and to the answer for a complete exposition of the opposing viewpoints expressed by the appellants and by the examiner concerning the above noted rejection.

OPINION

For the reasons which follow, we will sustain this rejection.

On pages 6 and 7 of the brief, the appellants present the following exposition which constitutes the one and only claim distinction argued on this appeal:

Unlike the display device defined by Claim 1 and the compensator layer defined by Claim 8, the compensator layer of the Ito et al. patent has not been shown in the Ito et al. patent to be formed of at least two retardation foils, each predominately containing polymerized or vitrified liquid-crystalline material, the liquid-crystal molecules in this material having average directions of orientation in the retardation foils which makes an angle with each other, that ranges between 60 and 120 degrees and which molecules exhibit

¹ As indicated on page 6 of the brief, the appealed claims will stand or fall together. Therefore, in assessing the merits of the rejection before us, we will focus on independent claim 1 as representing the claims on appeal. See 37 CFR § 1.192(c)(7)(2000).

a tilt relative to a plane parallel to the art retardation foils.

Contrary to the appellants' aforequoted argument, Ito expressly discloses a compensator layer comprising at least two retardation foils. See, for example, compensator sheets 102a and 102b in patentee's Figure 10 embodiment as well as the disclosure relating thereto. Further, it is apparent that the molecules in Ito's compensator sheets exhibit a tilt angle relative to his substrates as most clearly revealed by Figure 2 and the disclosure relating thereto. The only other claim feature argued by the appellants on this appeal concerns the appealed independent claim 1 requirement that "the average directions of orientation of the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material of each of the retardation foils, making an angle with each other which ranges between 60 and 120 degrees, viewed at right angles to the substrates."

As acknowledged by the examiner in the answer, the independent claims on appeal even when read in light of the subject specification are susceptible to more than one interpretation with respect to this claim feature. Interestingly (and unfortunately), the appellants in their reply brief have not even acknowledged much less addressed the differing claim interpretations proffered by the examiner in the answer. In any

event, it is our determination that Ito satisfies the above quoted claim requirement regardless of which of these interpretations is adopted.

For example, the claim feature in question might be interpreted as referring to a 60-120 degree angle formed by the average directions of orientation of the liquid-crystal molecules relative to each other within each of the retardation foils. When so interpreted, this 60-120 degree angle might be considered as corresponding to, for example, the tilt angle previously recited in the appealed independent claims. The 60-120 degree angle required under this interpretation would be satisfied by Ito's inclined angles shown in Figure 2 and described in lines 12-40 in column 17. In this latter regard, patentee teaches that these inclined angles preferably increase with distance and that the difference between the minimum and the maximum preferably is in the range of 5-70 degrees (e.g., see lines 36-40 in column 17). Thus, within each of Ito's compensator layers, the liquid-crystal molecules exhibit average directions of orientation which vary with distance and which make an angle with each other that falls within the here claimed range.

On the other hand, if the here claimed 60-120 degree angle is interpreted as between directions of orientation of the

liquid-crystal molecules in one retardation foil as compared to those in another retardation foil, such a limitation still would be satisfied by Ito. As previously mentioned, patentee discloses embodiments which include plural compensatory sheets which are analogous to the here claimed retardation foils. For example, in Figure 10, Ito shows two compensatory sheets 102a and 102b. As displayed in this figure, these sheets exhibit directions 102Ma and 102Mb that are at a 90 degree angle with respect to each other. These directions correspond to the orientation direction of the liquid crystalline compound contained in the compensatory sheets (e.g., see lines 36-41 in column 10 and lines 35-44 in column 11). It follows that the average directions of orientation of the liquid-crystal molecules in one of patentee's compensatory sheets would be at a 90 degree angle with respect to those in the other compensatory sheet, thus satisfying the 60-120 degree angle requirement of the independent claims when interpreted as described earlier.

For the above stated reasons, notwithstanding a careful evaluation of each of the claim features involved in the appellants' argument, we are unable to perceive the independent claims on appeal as distinguishing over Ito. It is here appropriate to remind the appellants that a lack of novelty is

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the ultimate of obviousness. In re Fracalossi, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982). We shall sustain, therefore, the examiner's section 103 rejection of all appealed claims as being unpatentable over Ito.

Other Issues

As discussed above, the appealed claims are susceptible to plural interpretations concerning the 60-120 degree angle defined therein. In any further prosecution that may occur, the appellants and the examiner should address and crystallize this claim interpretation issue. It is evident from the answer and our previous exposition that a factor relevant to this issue is whether this angle is defined by directions of orientation within a given retardation foil or is defined by directions of orientation in one foil as compared to those in another foil. Additional factors relevant to this issue include the plane in which this angle is measured as well as the direction from which this angle is viewed.

Summary

The decision of the examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

Bradley R. Garrison

Terry J. Owens
Terry J. Owens

Kinda R. Potente

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